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EXAMINER	
KRAFT, SHIH-WEI	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/577,520	Applicant(s) SONG ET AL.	
	Examiner SHIH-WEI KRAFT	Art Unit 2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 October 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to Amendment filed 10/27/2010 for Application No. 10/577,520.

2. Claims 1-22 are pending in this application. Claims 1, 10, and 16 are independent claims. In Amendment, no claims were cancelled and no claims were added. This Office Action is made final.

Examiner Notes

3. The Examiner cites particular columns and line numbers in the references as applied to the claims below for the convenience of the Applicant(s). Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested that, in preparing responses, the Applicant fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-5, 7-13, 15-19, and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang, et al. (US 2003/0004974) (hereinafter Wang) in view of O'Donnell (US 6,374,369).

As per claim 1, Wang discloses a method implemented by a computing platform hosting an event analyzer (see ¶17, ¶35-36) comprising:

presenting, by the computing platform, a plurality of virtual events supported by the computing platform, wherein a selected virtual event is generated by an associated platform component on the computing platform when a predefined condition is met, (see ¶26, ¶39) the associated platform component being one of the following hardware components: a graphical device, a network component, an interconnect path, a main memory, and a display; (e.g., "measured events", "microarchitecture event" and "platform events", see ¶22-24)

determining, by the associated platform component, (e.g., "The hardware component includes a set of monitor control vectors that are programmed by the software component.", see ¶27) whether an occurrence of the selected virtual event generated by the associated platform component is a sampled virtual event based on a configurable counter value; (e.g., "the monitor control vector may direct that the events by captured on a statistical sampling basis, such as capturing I-cache miss events every 1000 I-cache misses", see ¶27, ¶28, ¶34, ¶46)

storing, by the computing platform, the interrupted instruction; and (see ¶29, ¶36)

analyzing the sampled virtual event (see ¶25-26, Wang discloses "Software-based region selection and optimization allows the implementation of more sophisticated optimizations that cannot by easily accomplished in a conventional hardware-based dynamic optimizer." Analysis

of the monitored/collected events is necessarily required to make determinations upon how to optimize software-based regions.).

but Wang fails to disclose expressly for user selection, generating, by the associated platform component, an interruption to execution of an instruction in response to a determination that the occurrence of the selected virtual event is the sampled virtual event.

However, O'Donnell discloses for user selection, (see col. 6, lines 61 – col. 7, line 8) generating, by the associated platform component, an interruption to execution of an instruction in response to a determination that the occurrence of the selected virtual event is the sampled virtual event (e.g., "the COUNT register is set to generate an interrupt after 1000 clock cycles", see col. 6, lines 39-52; col. 8, lines 41-47; col. 12, lines 15-28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the capture of events on a statistical sampling basis as described by Wang with the interrupt when the desired event occurs as taught by O'Donnell because it would provide for the purpose of facilitating analysis on particular parts, (i.e., functions or routines or program variables) of the software in addition to the software as a whole (see O'Donnell col. 6, lines 39-52).

As per claim 2, Wang in view of O'Donnell discloses the method of claim 1 [see rejection to claim 1] further comprising: providing a driver interface to associate with the associated platform component, (see Wang ¶26-27) wherein the driver interface supplies a definition of the selected virtual event generated by the associated platform component (see Wang ¶26-27, ¶29, ¶36).

As per claim 3, Wang in view of O'Donnell discloses the method of claim 1 [see rejection to claim 1 above] further comprising: allocating a sampling buffer for the associated platform component that generates the sampled virtual event to store the interrupted instruction (see Wang ¶27-29, ¶36).

As per claim 4, Wang in view of O'Donnell discloses the method of claim 1 [see rejection to claim 1 above] but fails to disclose expressly further comprising: providing a user interface to receive a user definition of the virtual events.

However, O'Donnell discloses further comprising: providing a user interface to receive a user definition of the virtual events (e.g., "human readable output" or "viewer", see col. 8, line 58 - col. 9, line 10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the platform events as described by Wang with the human readable output and viewer as taught by O'Donnell because it would provide for the purpose of facilitating analysis through well known and common techniques via graphical means such as pie charts, bar charts, or other types of graphics (see O'Donnell col. 8, line 58 - col. 9, line 10).

As per claim 5, Wang in view of O'Donnell discloses the method of claim 1 [see rejection to claim 1 above] but fails to disclose expressly wherein analyzing the sampled virtual event comprises: calculating a frequency of the sampled virtual event occurring at a time an instruction module is executed.

However, O'Donnell discloses wherein analyzing the sampled virtual event comprises: calculating a frequency of the sampled virtual event occurring at a time an instruction module is executed (see col. 14, lines 4-37).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the platform events as described by Wang with the frequency or sampling ratio as taught by O'Donnell because it would provide for the purpose of facilitating analysis through well known and common techniques via graphical means such as pie charts, bar charts, or other types of graphics (see O'Donnell col. 8, line 58 - col. 9, line 10).

As per claim 7, Wang in view of O'Donnell discloses the method of claim 1 [see rejection to claim 1] further comprising: assigning an interrupt vector to the selected virtual event, (e.g., "handler routine through a lightweight interrupt mechanism", see Wang ¶27, ¶34, ¶46) but Wang fails to disclose expressly wherein the interrupt vector is accessed at a time when the occurrence of the selected virtual event is determined to be the sampled virtual event.

However, O'Donnell discloses wherein the interrupt vector is accessed at a time when the occurrence of the selected virtual event is determined to be the sampled virtual event (see col. 6, lines 39-52; col. 8, lines 41-47; col. 12, lines 15-28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the capture of events on a statistical sampling basis as described by Wang with the interrupt when the desired event occurs as taught by O'Donnell because it would provide for the purpose of facilitating analysis on particular parts, (i.e., functions or routines or program

variables) of the software in addition to the software as a whole (see O’Donnell col. 6, lines 39-52).

As per claim 8, Wang in view of O'Donnell discloses the method of claim 1 [see rejection to claim 1 above] but fails to disclose expressly further comprising: reporting an analysis at a time the instruction execution reaches a user-specified time limit.

However, O’Donnell discloses further comprising: reporting an analysis at a time the instruction execution reaches a user-specified time limit (e.g., “timers”, see col. 6, lines 21-25, 33-46, 64 – col. 7, line 8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the platform events as described by Wang with the user selections and settings as taught by O’Donnell because it would provide for the purpose of facilitating analysis of routines and/or variables that are of interest in profiling software (see O’Donnell col. 6, line 64 – col. 7, line 8).

As per claim 9, Wang in view of O'Donnell discloses the method of claim 1 [see rejection to claim 1 above] wherein storing the interrupted instruction further comprises: storing information of an instruction module containing the interrupted instruction (see Wang ¶29, ¶36).

As per claim 10, Wang discloses a system of an event analyzer (see ¶35-36) comprising:

a processor to execute instructions; (see ¶35-36)

a plurality of platform components sharing a platform with the processor, (see ¶24, ¶35-36) wherein each of the platform components is one of the following hardware components: a graphical device, a network component, an interconnect path, a main memory, and a display; (e.g., “measured events”, “microarchitecture event” and “platform events”, see ¶22-24)

a plurality of virtual event provider drivers, each of the virtual event provider drivers being associated with one of the platform components to provide definitions for virtual events supported by the platform; and (see ¶26-27)

a virtual event provider manager (e.g., “dynamic optimizer”, see ¶25) to query the virtual event provider drivers about the supported virtual events, wherein the virtual event provider manager causes sampled virtual events (e.g., “the monitor control vector may direct that the events by captured on a statistical sampling basis, such as capturing I-cache miss events every 1000 I-cache misses”, see ¶27, ¶28, ¶34, ¶46) to be analyzed, (see ¶25-26, ¶35-36)

wherein, when an associated platform component, which is one of the platform components that generates a selected virtual event when a predefined condition is met, determines that an occurrence of the selected virtual event is a sampled virtual event based on a configurable counter value, (e.g., “the monitor control vector may direct that the events by captured on a statistical sampling basis, such as capturing I-cache miss events every 1000 I-cache misses”, see ¶27, ¶28, ¶34, ¶46)

but fails to disclose expressly the associated platform component generates an interruption to execution of the instructions.

However, O'Donnell discloses the associated platform component generates an interruption to execution of the instructions (e.g., “the COUNT register is set to generate an

interrupt after 1000 clock cycles", see col. 6, lines 39-52; col. 8, lines 41-47; col. 12, lines 15-28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the capture of events on a statistical sampling basis as described by Wang with the interrupt when the desired event occurs as taught by O'Donnell because it would provide for the purpose of facilitating analysis on particular parts, (i.e., functions or routines or program variables) of the software in addition to the software as a whole (see O'Donnell col. 6, lines 39-52).

As per claim 11, Wang in view of O'Donnell discloses the system of claim 10 [see rejection to claim 10 above] further comprising: a plurality of sampling buffers, one of the sampling buffers being assigned to the associated platform components that generates the sampled virtual events, to store the instructions being interrupted (see Wang ¶27-28).

As per claim 12, Wang in view of O'Donnell discloses the system of claim 10 [see rejection to claim 10 above] but fails to disclose expressly the virtual event provider manager and virtual event provider drivers further comprise: a forwarding mechanism to receive a user-specified value (V) as the configurable counter value and forward the configurable counter value to the associated platform component, wherein the user-specified value (V) indicates that one out of V occurrences of the selected virtual event is the sampled virtual event.

However, O'Donnell discloses the virtual event provider manager and virtual event provider drivers further comprise: a forwarding mechanism to receive a user-specified value (V)

as the configurable counter value and forward the configurable counter value to the associated platform component, (see col. 6, line 61 - col. 7, line 16; col. 7, lines 32-54) wherein the user-specified value (V) indicates that one out of V occurrences of the selected virtual event is the sampled virtual event (e.g., "the COUNT register is set to generate an interrupt after 1000 clock cycles", see col. 6, lines 39-52; col. 8, lines 41-47; col. 12, lines 15-28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the platform events as described by Wang with the user selections and settings as taught by O'Donnell because it would provide for the purpose of facilitating analysis of routines and/or variables that are of interest in profiling software (see O'Donnell col. 6, line 64 – col. 7, line 8).

As per claim 13, Wang in view of O'Donnell discloses the system of claim 10 [see rejection to claim 10 above] but fails to disclose expressly further comprising: a report generator to generate a report that allows a user to identify the instructions being interrupted.

However, O'Donnell discloses further comprising: a report generator to generate a report that allows a user to identify the instructions being interrupted (see e.g., "human readable output" or "viewer", see col. 8, line 58 - col. 9, line 10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the platform events as described by Wang with the human readable output and viewer as taught by O'Donnell because it would provide for the purpose of facilitating analysis through well known and common techniques via graphical means such as pie charts, bar charts, or other types of graphics (see O'Donnell col. 8, line 58 - col. 9, line 10).

As per claim 15, Wang in view of O'Donnell discloses the system of claim 10 [see rejection to claim 10 above] wherein the virtual event provider drivers respond to the query by sending an event identifier and an interrupt vector for each of the supported virtual events (see Wang ¶39-40).

As per claim 16, Wang discloses a machine-readable medium (see ¶22, Wang discloses a "processor or computer", which necessarily requires a medium having instructions to implement the monitoring and dynamic optimization approaches.) having instructions therein which when executed cause a machine to:

present a plurality of virtual events supported by a computing platform, wherein a selected virtual event is generated by an associated platform component on the computing platform when a predefined condition is met, (see ¶26, ¶39) the associated platform component being one of the following hardware components: a graphical device, a network component, an interconnect path, a main memory, and a display; (e.g., "measured events", "microarchitecture event" and "platform events", see ¶22-24)

cause the interrupted instruction to be stored; and (see ¶29, ¶36)

cause the sampled virtual event to be analyzed (see ¶25-26, Wang discloses "Software-based region selection and optimization allows the implementation of more sophisticated optimizations that cannot by easily accomplished in a conventional hardware-based dynamic optimizer." Analysis of the monitored/collected events is necessarily required to make determinations upon how to optimize software-based regions.)

but fails to disclose expressly for user selection, receive, from the associated platform component, an interruption to execution of an instruction when the associated platform component determines, based on a configurable counter value, that an occurrence of the selected virtual event is a sampled virtual event.

However, O'Donnell discloses for user selection, (see col. 6, lines 61 – col. 7, line 8) receive, from the associated platform component, an interruption to execution of an instruction when the associated platform component determines, based on a configurable counter value, that an occurrence of the selected virtual event is a sampled virtual event (e.g., "the COUNT register is set to generate an interrupt after 1000 clock cycles", see col. 6, lines 39-52; col. 8, lines 41-47; col. 12, lines 15-28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the capture of events on a statistical sampling basis as described by Wang with the interrupt when the desired event occurs as taught by O'Donnell because it would provide for the purpose of facilitating analysis on particular parts, (i.e., functions or routines or program variables) of the software in addition to the software as a whole (see O'Donnell col. 6, lines 39-52).

As per claim 17, Wang in view of O'Donnell discloses the machine-readable medium of claim 16 [see rejection to claim 16 above] further comprising instructions operable to: allocate a sampling buffer for the associated platform component that generates the sampled virtual event to store the interrupted instruction (see Wang ¶28).

As per claim 18, Wang in view of O'Donnell discloses the machine-readable medium of claim 16 [see rejection to claim 16 above] but Wang fails to disclose expressly wherein interrupting execution of an instruction further comprises instructions operable to: receive a user-specified value (V) as the configurable counter value and forward the configurable counter value to the associated platform component, wherein the user-specified value (V) indicates that one out of V occurrences of the selected virtual event is the sampled virtual event.

However, O'Donnell discloses wherein interrupting execution of an instruction further comprises instructions operable to: receive a user-specified value (V) as the configurable counter value and forward the configurable counter value to the associated platform component, (see col. 6, line 61 - col. 7, line 16; col. 7, lines 32-54) wherein the user-specified value (V) indicates that one out of V occurrences of the selected virtual event is the sampled virtual event (e.g., "the COUNT register is set to generate an interrupt after 1000 clock cycles", see col. 6, lines 39-52; col. 8, lines 41-47; col. 12, lines 15-28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the platform events as described by Wang with the user selections and settings as taught by O'Donnell because it would provide for the purpose of facilitating analysis of routines and/or variables that are of interest in profiling software (see O'Donnell col. 6, line 64 – col. 7, line 8).

As per claim 19, Wang in view of O'Donnell discloses the machine-readable medium of claim 16 [see rejection to claim 16 above] but fails to disclose expressly wherein causing the

selected virtual event to be analyzed further comprises instructions operable to: calculate a frequency of the sampled virtual event occurring at a time an instruction module is executed.

However, O'Donnell discloses wherein causing the selected virtual event to be analyzed further comprises instructions operable to: calculate a frequency of the sampled virtual event occurring at a time an instruction module is executed (see col. 14, lines 4-37).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the platform events as described by Wang with the frequency or sampling ratio as taught by O'Donnell because it would provide for the purpose of facilitating analysis through well known and common techniques via graphical means such as pie charts, bar charts, or other types of graphics (see O'Donnell col. 8, line 58 - col. 9, line 10).

As per claim 21, Wang in view of O'Donnell discloses the machine-readable medium of claim 16 [see rejection to claim 16 above] further comprising instructions operable to: assign an interrupt vector (e.g., "handler routine through a lightweight interrupt mechanism", see Wang ¶27, ¶34, ¶46) to the selected virtual event, but Wang fails to disclose expressly wherein the interrupt vector is accessed at a time the selected virtual event occurs.

However, O'Donnell discloses wherein the interrupt vector is accessed at a time the selected virtual event occurs (see col. 6, lines 39-52; col. 8, lines 41-47; col. 12, lines 15-28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the capture of events on a statistical sampling basis as described by Wang with the interrupt when the desired event occurs as taught by O'Donnell because it would provide for the purpose of facilitating analysis on particular parts, (i.e., functions or routines or program

variables) of the software in addition to the software as a whole (see O'Donnell col. 6, lines 39-52).

As per claim 22, Wang in view of O'Donnell discloses the machine-readable medium of claim 16 [see rejection to claim 16 above] wherein causing the interrupted instruction to be stored further comprises instructions operable to: store information of an instruction module containing the interrupted instruction (see Wang ¶29).

6. Claims 6, 14, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang, et al. (US 2003/0004974) (hereinafter Wang) in view of O'Donnell (US 6,374,369) as applied to claims 1, 10, and 16 above, and further in view of Berry et al. (US 6,754,890).

As per claim 6, Wang in view of O'Donnell discloses the method of claim 1 (see rejection to claim 1 above) but Wang in view of O'Donnell fails to disclose expressly wherein storing the interrupted instruction further comprises: time-stamping the interrupted instruction.

However, Berry discloses wherein storing the interrupted instruction further comprises: time-stamping the interrupted instruction (see col. 15, lines 53-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the combination of Wang and O'Donnell by combining the platform events with the timestamp as taught by Berry because it would provide for the purpose of obtaining other timing information that can be calculated from the timestamp (see Berry col. 14, lines 51-60).

As per claim 14, Wang in view of O'Donnell discloses the system of claim 10 (see rejection to claim 10 above) but Wang in view of O'Donnell fails to disclose expressly further comprising: an event map table accessible by the virtual event provider manager to store a mapping between local indices of the supported virtual events and platform-wide event identifiers.

However, Berry discloses further comprising: an event map table accessible by the virtual event provider manager to store a mapping between local indices of the supported virtual events and platform-wide event identifiers (see Figure 23-24; see col 26, lines 46-65; col. 27, lines 11-32).

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the combination of Wang and O'Donnell by combining the platform events with the merging of trace records as taught by Berry because it would provide for the purpose of obtaining system-level information that were not collected within the trace record at the application level (see Berry col. 25, line 57 – col. 26, line 18).

As per claim 20, Wang in view of O'Donnell discloses the machine-readable medium of claim 16 (see rejection to claim 16 above) but Wang in view of O'Donnell fails to disclose expressly wherein causing the interrupted instruction to be stored further comprises instructions operable to: time-stamp the stored interrupted instruction.

However, Berry discloses wherein causing the interrupted instruction to be stored further comprises instructions operable to: time-stamp the stored interrupted instruction (col. 15, lines 53-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the combination of Wang and O'Donnell by combining the platform events with the timestamp as taught by Berry because it would provide for the purpose of obtaining other timing information that can be calculated from the timestamp (see Berry col. 14, lines 51-60).

Response to Arguments

7. Applicant's arguments with respect to claim 1-22 have been considered but are moot in view of the new ground(s) of rejection, and are not persuasive in view of the new ground(s) of rejection.

a. The Applicants argue in paragraph 2 of page 8 for claim 1 that Wang does not disclose a virtual event that is generated by a platform component, which is one of the following hardware components: a graphical device, a network component, an interconnect path, a main memory, and a display.

The Examiner respectfully submits that Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims

patentably distinguishes them from the references in view of the new ground(s) of rejection.

b. The Applicants argue in paragraph 2 of page 8 for claim 1 that Wang fails to disclose a “configurable counter value”, based on which a platform component determines whether an occurrence of a selected virtual event is a sampled virtual event.

The Examiner respectfully submits that Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references in view of the new ground(s) of rejection.

c. The Applicants argue in paragraph 2 of page 8 for claim 1 that O’Donnell fails to disclose a “configurable counter value”, based on which a platform component determines whether an occurrence of a selected virtual event is a sampled virtual event.

The Examiner respectfully submits that Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references in view of the new ground(s) of rejection.

Furthermore, the Examiner respectfully submits that in response to Applicants’ arguments against the references individually, one cannot show nonobviousness by

attacking references individually where the rejections are based on combinations of references. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

d. The Applicants argue in paragraphs 4 and 4 of page 8 that Wang and the other cited references do not disclose each of the elements of amended independent claims 1, 10, and 16, as well as their respective dependent claims. Applicants provide a similar argument on page 9 for claims 4, 5, 8, 12, 13, and 19 rejected under 35 U.S.C. 103(a) over Wang in view of O'Donnell, and for claims 6, 14, and 20 rejected under 35 U.S.C. 103(a) over Wang in view of Berry.

The Examiner respectfully submits that Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. The following prior art made of record and not relied upon is cited to establish the level of skill in the applicant's art and those arts considered reasonably pertinent to applicant's disclosure. See **MPEP 707.05(c)**.

a. US 5,537,541 A "System independent interface for performance counters" by Wibecan. Wibecan discloses computer performance optimization through an interrupt to the processor when the cache miss count matches a value stored in comparison register, and sampling of processor state at a number of cache misses or cache stall cycles.

b. US 5,691,920 A "Method and system for performance monitoring of dispatch unit efficiency in a processing system" by Levine et al. (hereinafter Levine). Levine discloses generating a number of events indicative of the performance of the computer system. A set of events is selected from a number of events in response to control being granted. Each event of the set of events is coupled to a corresponding counter in response to the set of events being valid. The corresponding counters are enabled to count the set of events to monitor the performance of the computer system.

c. US 5,768,500 A "Interrupt-based hardware support for profiling memory system performance" by Agrawal et al. (hereinafter Agrawal). Agrawal discloses combining simple hardware support and sampling techniques to obtain empirical data on memory behavior to guide optimizations.

d. US 5,835,702 A "Performance monitor" by Levine et al. (hereinafter Levine2). Levine2 discloses providing a performance monitor comprising a plurality of counters for counting various events occurring within the processing system. A code point is inserted within a control register of the performance monitor, whereby the code point notifies the performance monitor to begin counting a particular event. Generic code points may then be inserted into other control register locations pertaining to one or more of the other counters within the performance monitor, whereby these generic code points inform their associated counters to begin counting other parameters with respect to the event indicated within the first performance counter.

e. US 6,681,387 B1 "Method and apparatus for instruction execution hot spot detection and monitoring in a data processing unit" by Hwu et al. (hereinafter Hwu). Hwu discloses hot spot detection and monitoring of instructions in a data processor and designing of compilers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Wei Kraft whose telephone number is (571) 270-3388. The examiner can normally be reached on Monday to Friday 6:30 AM to 3:30 PM.

If attempts to reach the above noted Examiner by telephone are unsuccessful, the Examiner's supervisor, Hyung Sough, can be reached at the following telephone number: (571) 272-6799.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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